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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/350,152

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GARRAIT

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EXAMINER

CH, T

ART UNIT

PAPER NUMBER

1623

DATE MAILED:

06/28/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/350,152

Applicant(s)

Garrait et al

Examiner

TAYLOR VICTOR OH

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on Apr 5, 2001

2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 35 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) 15-34 is/are pending in the application

4a) Of the above, claim(s) _____ is/are withdrawn from consideration

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) 15-34 is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirements

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

a) ☐ All b) ☐ Some* c) ☐ None of:

- ☐ Certified copies of the priority documents have been received.
- ☐ Certified copies of the priority documents have been received in Application No. _____
- ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

15) ☐ Notice of References Cited (PTO-892)

18) ☐ Interview Summary (PTO-413) Paper No(s). _____

16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

19) ☐ Notice of Informal Patent Application (PTO-152)

17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____

20) ☐ Other: _____

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Non-final rejection

1. Applicants' arguments with respect to claims 15-34 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 15-18, 16, 19-22, 24-26, 28-29, and 31-32 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Suchsland et al (U.S. 5,847,207).

Suchsland et al disclose a process for producing 2-hydroxy-4-methylthiobutyric acid by hydrolyzing 2-hydroxy-4-methylthiobutyronitrile (MMP-CH) in the following steps:

- a. mixing 80 g 98 % sulfuric acid (0.8 mole) diluted with 40 g water (2.2 mole) with 98.6 % 2-hydroxy-4-methylthiobutyronitrile (MMP-CH) (1 mole) at 50° C.,
- b. adding 75 g water (40.2 %) to the intermediate MHA amide, and
- c. heating the mixture to 100-120° C. and evaporating the resultant mixture , thereby obtaining the desired MHA product (see from col. 9, lines 48-67 to col. 10, lines 1-8).

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The claims are identical to the prior art reference.

Claim Rejections - 35 USC § 103

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

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4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
6. Claims 23, 27, 30, and 33-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suchsland et al (U.S. 5,847,207) in view of Hsu et al (U.S. 5,856,567).

Suchsland et al disclose a process for producing 2-hydroxy-4-methylthiobutyric acid by hydrolyzing 2-hydroxy-4-methylthiobutyronitrile (MMP-CH) in the following steps:

- a. mixing 80 g 98 % sulfuric acid (0.8 mole) diluted with 40 g water (2.2 mole) with 98.6 % 2-hydroxy-4-methylthiobutyronitrile (MMP-CH) (1 mole) at 50° C.,
- b. adding 75 g water (40.2 %) to the intermediate MHA amide, and
- c. heating the mixture to 100-120° C. and evaporating the resultant mixture, thereby obtaining the desired MHA product (see from col. 9, lines 48-67 to col. 10, lines 1-8).

However, Suchsland et al differ from the instant invention in that the hydrating step (a) is carried out at a pressure range between 0.01 and 3 bar whereas the hydrating step (b) at pressure range between 0.5 and 5 bar, and the excess water is recycled and used in the hydrolyzing step (b), and the concentrated feed stream contains 50 or 80 wt. % 2-hydroxy-4-methylthiobutyronitrile (MMP-CH).

Hsu et al (U.S. 5,856,567) teach a process for preparing 2-hydroxy-4-methylthiobutyric acid by introducing 2-hydroxy-4-methylthiobutyronitrile and an aqueous mineral acid into a nitrile

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hydrolysis reactor at a temperature of from 40 to 60⁰ C. and feeding the nitrile hydrolysis reactor product steam containing the intermediate MHA amide into an amide hydrolysis flow reactor at a temperature of from 60 to 100⁰ C. at a pressure of from 0 to 1 bar (see col. 8 , line 9).

Concerning the excess water being recycled and used in the hydrolyzing step (b), the reference is silent. However, the excess water being recycled is related to the optimization of the process. Therefore, if the person having an ordinary skill in the art had desired to optimize the use of water, it would have been obvious for the skillful artisan in the art to have applied the evaporated excess water in the first hydrolyzing step to the hydrolyzing step (b) so as to economize the overall process.

With respect to the concentrated feed stream contains 50 or 80 wt. % 2-hydroxy-4-methylthiobutyronitrile (MMP-CH), the reference is silent. However, it is well-known in the art that the dilution in the nitrile hydrolysis reactor prevents a liquid phase separation during the process as well as precipitation of ammonium bisulfate when sulfuric acid is employed. Therefore, if the skillful artisan in the art had desired to prevent any obstacle in the preparation of 2-hydroxy-4-methylthiobutyric acid due to the lack of water, it would have been obvious for the skillful artisan in the art to have diluted the concentrated 98.6 % 2-hydroxy-4-methylthiobutyronitrile feed stream to the 50 or 80 wt. % 2-hydroxy-4-methylthiobutyronitrile by a routine experimentation so as to prevent the liquid phase separation as well as precipitation of ammonium bisulfate during the process.

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Therefore, if the skillful artisan in the art had desired to achieve a high selectivity of 2-hydroxy-4-methylthiobutyric acid, it would have been obvious for the skillful artisan in the art to have used Hsu et al's pressure parameter of the hydrolyzing steps in the Suchsland et al's specific operating conditions so as to maximize the efficiency of the overall process.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to T. Victor Oh whose telephone number is (703) 305-0809. The examiner can normally be reached on Monday through Friday from 8:30 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Geist, can be reached on (703) 308-1701. The fax phone number for the organization where this application or proceeding is assigned is (703) 308-4556.

✓
6/22/2001



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